

**LETTER REPORT
FOR
AMERICAN CHEMICAL SERVICES
GRIFFITH, LAKE COUNTY, INDIANA
TDD: S05-9909-011
PAN: 9P1101SIXX**

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February 11, 2000

Prepared for:

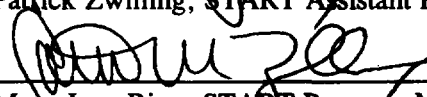
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Emergency Response Branch
77 West Jackson Boulevard
Chicago, Illinois 60604**

Prepared by: 
William Sass, START Project Manager

Date: 2/11/00

Reviewed by: 
Patrick Zwilling, START Assistant Program Manager

Date: 2/11/00

Approved by: 
Mary Jane Ripp, START Program Manager

Date: 2/11/00



ecology and environment, inc.

International Specialists in the Environment

33 North Dearborn Street, Chicago, Illinois 60602
Tel. 312/578-9243, Fax: 312/578-9345

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February 11, 2000

Gail Nabasny, START Project Officer
United States Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: American Chemical Services
Griffith, Lake County, Indiana
TDD: S05-9909-011
PAN: 9P1101SIXX

Dear Ms. Nabasny:

The Ecology and Environment Inc., (E & E) Superfund Technical Assessment and Response Team (START) has been tasked by the United States Environmental Protection Agency (U.S. EPA) to perform a site reconnaissance visit, evaluate threats to public health and the environment, and to prepare an estimate of costs for a time critical removal action to mitigate the threat posed by the drums buried near a pipeline at the American Chemical Services (ACS) site, in Griffith, Lake County, Indiana. Ongoing remedial actions occurring at the ACS site by the potentially responsible party (PRP) contractor, Focus Environmental, include collection and treatment of solvent-contaminated groundwater and excavation of buried drums and soils contaminated with various organic chemicals including benzene, toluene, ethylbenzene, xylene (BTEX) compounds, polychlorinated biphenyls (PCBs), trichloroethylene (TCE), and tetrachloroethylene (PCE). The remedial contractor for American Chemical Services recently uncovered buried drums near a 30-inch oil pipeline. The Lakehead Pipeline, owner of the pipeline, reported that the pipeline provides 40 percent of the Chicago area's crude oil demand. Lakehead Pipeline warned the remedial contractor of their liability if they excavate within the pipeline's 20-foot easement. The buried drums are approximately 10 feet from the pipeline, which is 10 feet within the easement. The remedial contractor declined to assume the liability associated with excavation of these drums and the task was referred to U.S. EPA's Emergency Response Branch.

On November 30, 1999, START conducted a site visit to visually inspect the site and to receive data concerning the site from the PRP contractor. Several site buildings were toured and the site operations were monitored by START.

Paragraph (b) (2) of part 300.415 of the National Contingency Plan lists factors to be considered when determining the appropriateness of a removal action. The following discussion summarizes the factors applicable at the ACS site:

- **Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.** Soil contaminated with various organic chemicals, including benzene, 2-butanone, chloroform, p-cresol, ethylbenzene, 2-hexanone, isophorone, various phthalates, PCBs, PCE, toluene, TCE, and xylene, has been demonstrated from samples collected by Focus Environmental at the ACS site. Although it is unknown whether or not the remaining buried drums are responsible for this contamination, it is possible that the drums have contributed or will contribute to the contamination. Wooded areas surrounding the ACS site contain wildlife that could potentially come into contact with soil contaminants. Bioaccumulative contaminants such as PCBs could enter the food chain. The following paragraphs briefly discuss specific chemicals detected in laboratory samples collected from the site. Chemicals discussed in this section were selected based upon their frequency of detection or particularly elevated concentrations.

Benzene - According to the Agency for Toxic Substances and Disease Registry's (ATSDR's) *Toxicological Profile for Benzene*, humans can be exposed to benzene through respiratory, gastrointestinal, and skin absorption routes. Acute respiratory exposure to benzene can cause drowsiness, dizziness, headache, rapid heart rate, tremors, confusion, and unconsciousness. Similar effects are seen with ingestion of benzene, in addition to stomach irritation and vomiting. Benzene can also damage blood-forming tissues and can cause cancer. Dermal exposure to benzene can cause redness or sores. Analysis of drum samples showed elevated levels of benzene and other organic compounds.

Ethylbenzene - According to ATSDR's *Toxicological Profile for Ethylbenzene*, exposure to low levels of ethylbenzene in air can cause irritation of the eyes and throat. Exposure to higher levels of ethylbenzene has caused dizziness in humans. Other possible effects of human exposure to ethylbenzene are unclear because people exposed to ethylbenzene are usually exposed to it in combination with other chemicals. At least two of the drum samples showed elevated levels of ethylbenzene.

p-Isopropyltoluene - According to *Hazardous Chemicals Data Book*, exposure to p-isopropyltoluene, also known as p-cymene, can cause impairment of coordination and headache if inhaled, irritation of the eyes and skin by direct contact, and irritation of the mouth and stomach if ingested. Four of the six drum samples analyzed for volatile organics showed elevated levels of p-isopropyltoluene.

Lead - According to ATSDR's *Toxicological Profile for Lead*, humans can be exposed to lead through inhalation and ingestion. Exposure of humans to lead can cause weakness of the extremities, increased blood pressure, and anemia. Exposure to high levels of lead can cause brain and kidney damage, and may adversely affect the testicles in men. Elevated levels of lead were detected in samples of paint chips collected at the site from the second floor of Building 2

) and from dried sludge in the paint booth trough in Building 11. Animal excrement was observed by START in Building 2 among paint chips on the floor. START also observed a large mammal in Building 11 near the paint booth during the site assessment. Trespassers in the building may also be exposed to lead.

Mercury - According to ATSDR's *Toxicological Profile for Mercury*, exposure to mercury in its different forms can have a variety of neurological and gastrointestinal effects, as well as adverse effects on the kidney. Mercury may also cause eye, skin, and mucous membrane irritation. Low levels of mercury were detected in a sample collected from the paint booth trough in Building 11. Metallic mercury was also observed in several thermostat switches in the building complex.

Naphthalene - According to ATSDR's *Toxicological Profile for Naphthalene*, exposure to a large amount of naphthalene can cause hemolytic anemia, the destruction of red blood cells. Exposure to naphthalene has also caused development of cataracts and nose and lung irritation in laboratory animals. Elevated levels of naphthalene were detected in several drum samples.

Polychlorinated biphenyls (PCBs) - PCBs are a class of compounds with varying degrees of chlorine substitution on two phenyl rings joined by a single bond between the 1 and 1' positions. Because of their thermal stability and resistance, low water solubility, and favorable dielectric properties, PCBs were widely used in hydraulic fluids, compressor lubricants, heat transfer fluids, paints, lacquers, and ink. The liver is the target organ most frequently associated with the toxic effects of PCBs. Hepatic effects have been seen in rats, mice, guinea pigs, rabbits, dogs, and monkeys. The toxic manifestations typically include liver enlargement, fat deposition, enzyme induction, and tissue necrosis. Hepatic effects, including liver enlargement and increases in hepatic enzyme levels, have also been reported in humans occupationally exposed to PCBs. Exposure to PCBs both by dermal contact and by oral exposure has led to skin lesions in animals. Exudative lesions have been seen in rats, and monkeys exhibit chloracne-like lesions. Various skin lesions, including rashes, burning sensations, acne, hyper-pigmentation of the skin, and other manifestations, have been seen in humans occupationally exposed to PCBs. PCBs also have been shown to cause cancer in laboratory animals.

Toluene - According to ATSDR's *Toxicological Profile for Toluene*, exposure to toluene can cause tiredness, confusion, weakness, memory loss, nausea, loss of appetite, dizziness, unconsciousness, and death. Repeated exposure to toluene can lead to permanent brain damage and kidney damage. Animals exposed to toluene have shown adverse effects to the liver, kidneys, and lungs.

nervous system effects, as well as anemia and bronchitis. In several drum samples analyzed for volatile organics, 1,2,4-trimethylbenzene was detected at levels ranging from 360 parts per million (ppm) to 16,000 ppm.

1,3,5-Trimethylbenzene - According to *Sax's Dangerous Properties of Industrial Materials*, exposure to 1,3,5-trimethylbenzene can cause adverse neurological respiratory tract effects. Exposure to 1,3,5-trimethylbenzene has caused abnormally low white blood cell and platelet counts in laboratory animals.

Xylene - According to ATSDR's *Toxicological Profile for Xylene*, exposure to xylene by various routes can have adverse neurological, immunological, developmental, and genotoxic effects, and can also cause systemic effects, death, and leukemia. Xylene was detected in all drum samples tested for volatile organics, at levels ranging from 140 ppm to 53,000 ppm.

- **Actual or potential contamination of drinking water supplies or sensitive ecosystems.** Investigation of the ACS site has already demonstrated groundwater contamination from the site. Several residential wells east and south of the site have been shown to be contaminated with organic compounds originating from the ACS site.
- **Hazardous substances or pollutants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.** The ACS site contains buried steel drums. The longer these drums remain buried, the more they will degrade. It is unknown whether these drums have already released their contents into the soil and groundwater. Furthermore, these drums are located approximately 10 feet from a crude oil pipeline. Since drum contents are currently unknown, it is possible that a release from the drums may degrade the cathodic protection of the pipeline and eventually cause it the leak.
- **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.** Freeze-thaw cycles may hasten degradation of the buried drums and cause them to release their contents.
- **Threat of fire or explosion.** Contents of the remaining buried drums on the ACS property are unknown, but based on data from drums excavated elsewhere on the property, these drums may contain flammable and combustible compounds. Furthermore, if the released contents of the buried drums degraded the crude oil pipeline's cathodic protection or degraded the pipe itself, a release of crude oil could occur.

A removal action to mitigate threats posed by the remaining buried drums at the ACS site is estimated to cost approximately \$26,352. The removal action will include surgical excavation of buried drums along the Lakehead Pipeline, geophysical surveys, overpacking of the drums, and backfilling of the excavation site. The following assumptions were made in preparing a removal cost estimate for the ACS site using the Removal Cost Management System (RCMS) Version 4.2 Cost

backfilling of the excavation site. The following assumptions were made in preparing a removal cost estimate for the ACS site using the Removal Cost Management System (RCMS) Version 4.2 Cost Projection Module:


- The removal will be conducted by the Emergency and Rapid Response Services (ERRS) contractor.
- Site personnel will include one U.S. EPA On-Scene Coordinator (OSC), one START member, one ERRS Response Manager, one ERRS equipment operator, and two ERRS laborers.
- A geophysical survey to monitor vibrations may be conducted for a one-week period prior to excavation to provide background information, and during the excavation of the drums. U.S. EPA Technical Support personnel may conduct the vibration monitoring near the pipeline.
- The removal will occur over four 10-hour work days.
- All equipment will be provided by the ERRS contractor.
- The PRP's remedial contractor will overpack drums and dispose of all waste generated.
- The ERRS contractor will provide clean backfill soil after excavation of the drums.

This Letter Report completes START activities under TDD S05-9909-011. Should you have any questions or require additional information, please contact our offices.

Sincerely,



William Sass
START Project Manager



Mary Jane Ripp
START Program Manager

Attachments: A - RCMS Cost Projection

cc: W. Simes, OSC, U.S. EPA, Chicago
File